



CORE CONCEPTS



Biology

**Digital Resource from
Rosen Publishing**

Supports STEM & Next Generation Science Standards!

Core Concepts: Biology, the second database in Rosen's Core Concepts suite, encourages middle and high school students to think like scientists! This rich resource covers the study of life from adaptation to zooplankton, and includes such topics as animal systems, cell biology, ecology, genetics, microbes, plant structures, and more.

Features include:

Learners will experience:

- For grades 7–12
- Professional footage, images, videos, diagrams, and data tables
- Instant translation, text-to-speech, and text highlighting to support challenged readers and ELLs
- Biographies and interactive timelines that put discoveries and events in historical context
- Science experiments to get hands-on with biology

Educators will appreciate:

- Curriculum correlations to NGSS, Common Core Standards, and national, state, and provincial standards
- Interactive activities demonstrate the impact of biology on life, empowering students to be creative content creators
- Lesson plans and instructional materials provide easy classroom integration
- iPad, iPhone, and iPod Touch, and Android compatibility

Homepage

Appealing, friendly interface with prominent search tool.



Site Help | Logout ROSEN digital >>

Browse A-Z

Animal Systems	Biology Basics	Cell Biology	Ecology	Evolution	Genetics	Human Body
	Plant Structures	Reproduction	Scientist Biographies	Plan-It Earth: Cause & Effect	Explore, Create, Learn	Resources for Teachers and Librarians

Top navigation bar leads to article browse, interactive activities, and resources for teachers and librarians.

Core Idea: Genetically Modified Food



Genetically modified (GM) food is engineered by introducing organisms to generate certain results. Corn, for example, has been modified to resist pests. Recently, a Canadian company modified apples to be sliced. Some believe GM apples hurt the fruit industry and increase food costs.

[Read More](#)

"Core Idea" highlights different article content each week. Different interactive features are also updated weekly.

Process of Cell Division

This mammal cell is undergoing mitosis. Before this process begins, the cell's chromosomes replicate so that each daughter cell will have a complete set of genetic material. The nuclear envelope around the nucleus breaks down, and the spindle starts to form. Daughter cells are formed after the chromosomes are pulled apart and the cell divides. Daughter cells are genetically identical to their parent cell because they contain the same number and type of chromosomes.

[Read More](#) [See More Videos](#)



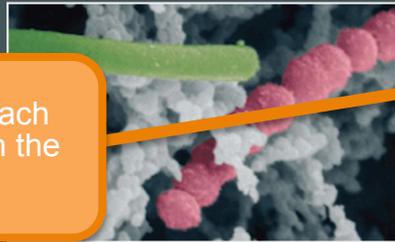
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Visual browse

Click on a subject area to start exploring the resource

Systems	Biology Basics	Cell Biology	Ecology	Evolution	Genetics	Human Body
Microbes	Plant Structures	Reproduction	Scientist Biographies	Plan-It Earth: Cause & Effect	Explore, Create, Learn	Resources for Teachers and Librarians

The main concept of each section is introduced in the top content box.



Microbes

Peer into the hidden world of Earth's oldest, smallest, and toughest life forms. Bacteria, protists, and viruses thrive in every environment, from Arctic ice and volcanic ocean vents to plant roots and even your intestines. Find out how microorganisms cause disease but also enrich our lives, even offering hope for a brighter future.



Microscopic Life

Microorganisms matter. Although we cannot see them without using a microscope, billions of microorganisms live all around us—on land, sea, and even deep underground.

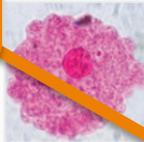
[Read More](#)



Bacteria

Some bacteria cause diseases, but most perform vital, useful functions in the body systems of animals and also in the recycling of nitrogen.

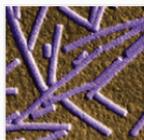
[Read More](#)



Protists

The protist kingdom is largely made up of microorganisms, including amoebas, single-celled algae, and slime molds. Seaweeds are also part of the group. Some protists live as plankton and are vital to the world's ecosystems. Others are parasites and can be dangerous.

[Read More](#)



Viruses

Viruses are simple structures made of pieces of genetic material (DNA or RNA) surrounded by a protein coat. Some scientists do not think viruses are living organisms.

[Read More](#)

Click "Read More" to navigate to detailed article content.

Each image corresponds to different related articles within this section.

Navigating an article

Print Email Cite this Article

Browse A-Z Browse Subject

Sections

The Kingdom Protista

- Structure and Evolution of Protists
- Protist Life
- Movement and Defense
- Reproduction of Protists
- Protists and the Ecosystem
- Symbiosis
- Parasites and Disease
- Fighting Malaria
- Resources
- For Further Reading
- Glossary

Investigate

- Cell Basics
- Life at the Molecular Level
- Microorganisms and Disease
- Microscopic Life
- Water Ecosystems

Table of contents allows students to navigate within an article.

Articles feature "Resources," "For Further Reading," and "Glossary."

Protists

Listen

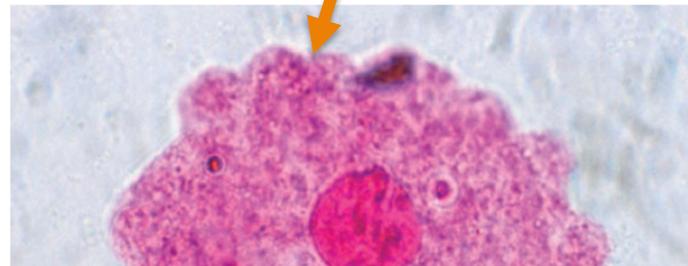
The Kingdom Protista

The protist kingdom is largely made up of microorganisms, including unicellular organisms called algae, and slime molds. Seaweeds are also protists. They are found in plankton and are vital to the world's ecosystems. Others are parasites and can be dangerous.

The amoeba is probably one of the most famous of all microorganisms. This crawling, blob-shaped creature has long been used as a symbol of primitive life, but amoebas are specialized, highly adapted organisms. They are members of the kingdom protista, or **protists**, a varied group of mainly single-celled life forms. From the countless microscopic inhabitants of the world's oceans to dangerous organisms such as the malaria parasite, protists are hugely important members of the world's ecosystems.



Paramecia are common protists in aquatic environments. These microbes are equipped with cilia around their cell membranes. Cilia enable a paramecium to propel through water. Sinclair Stammers/Oxford Scientific Video/Getty Images



Each article includes diagrams, videos, and extensive information, including highlighted vocabulary providing rollover definitions.

Navigating an article

As you scroll down in the article, you will see the following:

Charts, tables, and diagrams organize information and make it accessible and engaging for all types of learners.

▼ AMEBAS



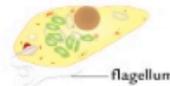
Animal-like, constantly changing shape as they move; not all closely related; some types build protective cases.

▼ FLAGELLATES



This large grouping includes many unrelated types of protists; includes any with a flagella, including the dinoflagellates and euglenoids; can be animal-like or plantlike.

▼ EUGLENOIDS



Single-celled flagellates. Some can switch from

making their own food to eating other cells; their relatives include the trypanosome parasites that cause sleeping sickness.

▼ DINOFLAGELLATES



Protists with two flagella (long whiplike structures used for movement; singular flagellum) and a protective armor of cellulose; important in plankton and red tides; both animal-like and plantlike features.

▼ CILIATES



Animal-like protozoans covered with many small hairlike projections of the cell membrane (cilia; singular cilium); among the most complex of all single-celled organisms; includes *Paramecium*.



Plantlike protists that build intricate boxlike protective cases of silica (a glasslike material); important in plankton, the community of tiny drifting life forms of oceans and lakes that often forms the base of food chains.

▼ SPOROZOANS



Traditional grouping of many parasitic protists, including the malaria parasite *Plasmodium* (above).

▼ FORAMINIFERANS (forams for short)



Animal-like, mainly marine; live in

elaborate protective cases, usually from chalky calcium carbonate.

▼ GREEN ALGAE*



Plantlike forms, especially important in fresh water; includes single-celled species, larger seaweeds, and filamentous (threadlike) *Spirogyra*. They are the ancestors of land plants.

▼ RADIOLARIANS* & HELIOZOANS



Protists usually with a spherical, radiating shape; not all closely related; heliozoans ("sun" animals) are mainly freshwater,

Articles feature science experiments and exercises to apply knowledge.

Call-outs feature hands-on activities and ways to apply the information to daily life.

This chart outlines the characteristics of different types of protists.

[View Larger Image](#)

© Brown Bear Books Ltd.

Collect Your Own Protists

You can easily look at microlife that can develop in even the smallest puddle.

1. Make an artificial puddle by filling a clear jar about two-



Navigating an article

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Print Email Cite this Article

Browse A-Z

Browse Subject

Sections

Driving Evolution

Galápagos Islands

Species

Niches and Adaptations

How Diversity Arises

Resources

For Further Reading

Glossary

Investigate

Animal Adaptation

Natural Selection

Listen

NEXT SECTION >>

Select Language

Google Translate

SHARE

f t e ...

Driving Evolution

Evolution is driven by natural survival to spread through a population.

Within any population (regional group of the same **species**) of organisms some individuals are better suited to survive and breed than others. In turn, more young of the better-adapted organisms survive. This is called **natural selection**. It is one of the driving forces behind **evolution**.

Although a number of earlier thinkers had suggested that species may change over time, English naturalist Charles Darwin (1809–1882) was the first biologist to figure out how evolution works. He looked at different groups such as barnacles and pigeons to show how natural selection takes place.

- Text-to-speech and instant translation help students read and understand the content.
- Video, photos, diagrams, and data tables demonstrate and reinforce key concepts.



Male peacocks use their flashy tails to help them attract a mate. The female will choose the peacock with the showiest tail so that her offspring will have a genetic advantage.

neelsky/Shutterstock.com

- Print or email an entire article or an article section.
- Citations can be automatically generated in MLA and APA format.
- Investigate related articles.

Navigating an article

Niches and Adaptations

How Diversity Arises

Resources

For Further Reading

Glossary

Sometimes organisms possess adaptations with an obvious function. For example, the limbs of whales and seals have evolved into flippers, which are much more efficient for moving through water than the land-adapted limbs of their ancestors.

Think Like a Scientist

Think about aquatic mammals such as dolphins, hippos, or otters. Can you think of adaptations these mammals have for living in water?

Reconstructing the Moa

In 1839 English anatomist Richard Owen (1804–1892) published an accurate reconstruction of the moa, an extinct animal from New Zealand. Owen only had a fragment of limb bone to work with. How did he do it?

Owen looked closely at adaptations. Bird bone has a unique internal structure for flight, so he knew the creature was a bird. The thick bone he had suggested it belonged to a long-legged running bird like an ostrich. With these observations, Owen was able to reconstruct the moa.

Each page contains links to:

- Interactive Timelines
- Plan-It Earth: Cause & Effect interactive activity
- Resources for Teachers and Librarians
- Explore, Create, Learn area with study tools, and content-creation activities for students

Call-outs highlight key concepts, real-world examples, and thought-provoking “Think Like a Scientist” questions.



Interactive Timelines



Plan-It Earth: Cause & Effect



Explore, Create, Learn



Resources for Teachers and Librarians



Interactive Activities

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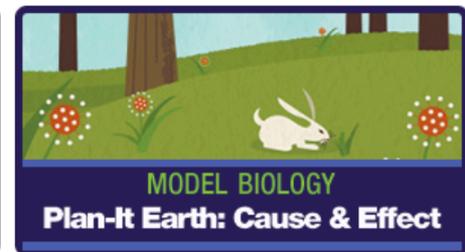
Explore, Create, Learn

Interactive activities reinforce skills and core ideas.

- Video gallery conveniently catalogs all the videos that appear throughout.
- Biology flashcards test recall and help students prepare.



Jumpstart your project or presentation with these interactive activities.



Curriculum Correlations

Interactive Activities

CORE CONCEPTS



Explore, Create, Learn



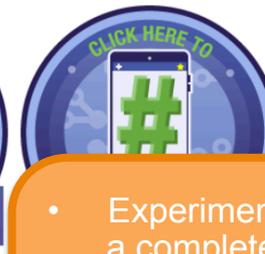
Create a Multimedia Presentation



Create a Podcast



Film a Public Service Announcement



- Experiments button links to a complete list of experiments that appear throughout.
- “Try This! Activities” links to a complete list of activities that appear throughout.

Jumpstart your project or presentation with these interactive



CLICK HERE TO
Explore the Video Gallery



TEST YOUR KNOWLEDGE
Biology Flash Cards



MODEL BIOLOGY
Plan-It Earth: Cause & Effect



CLICK HERE TO
Explore Interactive Timelines



GET HANDS ON WITH
Experiments



GET HANDS ON WITH
Try This! Activities

Curriculum Correlations

Interactive “Plan-It Earth” Activity

Exercise shows how individual decisions directly impact the environment.

Plan-It Earth: Cause & Effect

CHOICE 1 OF 4

[START OVER]



A local logging company has applied for a permit to log the forests on these mountains.

A group of ecologists is arguing against them. The roots of trees and other plants help hold the soil in place during heavy rains and snow runoff. If the mountains lose too many trees it could put the town at risk from mudslides.

However if the permit is denied, many of the local workers may lose their jobs and the economy of the entire town could suffer.

Learn more:

[Ecology Basics](#) [Understanding Ecosystems](#) [Conservation](#)

[Human Impact on Ecosystems](#)

“Learn more” section links to articles with detailed information on related topics.



YOU CHOSE:
[Deny the Logging Permit](#)

Some of the townspeople suffer because of reduced logging income, but the plants and animals that live in the forest thrive for another season.

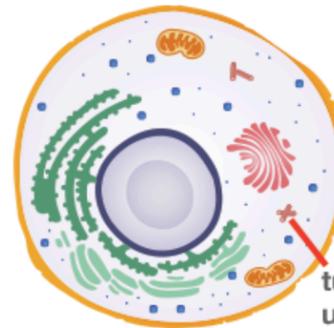
[Continue](#)

Interactive Activities

These downloadable flashcards can be viewed online or imported into 3rd-party flashcard apps for mobile devices, such as Quizlet.



Label an Animal Cell



tubular structures
used in
cell division

Click to flip

1 of 10

Quizlet [View this study set](#)

Choose a Study Mode

[Flashcards Home](#)

Interactive Timelines

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Biology Basics Timeline

Interactive Timelines showcase events and discoveries related to each topic, along with a U.S. and World Events timeline to put them in historical context.



Film Audio Services/Archive Films/Getty Images

Penicillin being produced in a factory in 1944

1941 **Scientific Events**

Producing penicillin

Pharmaceutical companies begin to produce penicillin for Allied troops.

1941
Pearl Harbor



Video, photos, and other visual elements keep learners engaged.

“Explore, Create, Learn” Activities

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Create a Podcast!

DOWNLOAD
BLANK
CHECKLIST

Build Your Checklist:



STEP 1 OF 7

Introduction

Podcasting is a popular medium for people on the go. Many people listen to podcasts on their smartphones or iPods during their commutes to school or work, or while multitasking around the house. What's a podcast? It's an audio or video program that can be downloaded or streamed from the Web, and it can be about anything. There are podcasts about sports, comedy, politics, celebrities, history, economics, news—you name it, and there's probably a podcast about it!

Podcasts follow different formats. Some are question-and-answer, some follow a narrative and contain many interviews, and some are round-table discussions with a small group of people. In this activity, you'll be preparing to record an audio podcast where you interview a biologist about his or her research or field of study.

Your Name:



NEXT

Podcast Checklist:

Students can get a jumpstart on their projects or presentations by using these step-by-step organization tools.

0% COMPLETE

PRINT CHECKLIST

SAVE AS PDF

EMAIL CHECKLIST

Go to [Activities home](#). (Save your checklist so you don't lose any changes!)

Librarian/Educator Resources

Site Help | Logout ROSEN digital >>



Resources for Teachers and Librarians

Curriculum Correlations

Customer Newsletters

Lesson Plans

Online Training

Promotional Materials

Try This!

Usage Statistics

User's Guide

Video Gallery

Web Buttons



Interactive Timelines



Plan-It Earth: Cause & Effect



Explore, Create, Learn



Resources for Teachers and Librarians

Resources for Teachers and Librarians

Core Concepts: Biology offers an extensive array of resources to help teachers and librarians most effectively use this online resource. From curriculum correlations and promotional materials to lesson plans and reference guides, you will find all the tools you need to support your student users here.

And, to receive the latest on exciting new features of Core Concepts: Biology, proven promotional and programming ideas, and advice to best serve your students, [simply send us your email address](#).

From curriculum correlations and lesson plans, to promotional materials and web buttons, to online training and usage statistics, you can find all the tools you need.

About Rosen Publishing

Rosen Publishing is an award-winning educational publisher of K-12 nonfiction, offering print, ebooks, Interactive ebooks, apps, games, and online databases. Our iPad and smartphone compatible resources support Common Core learning standards as well as 1:1 laptop initiatives, blended and personalized learning, digital literacy and digital citizenship, financial literacy, STEM, reading and language arts, and bullying prevention. Rosen's groundbreaking Interactive eBooks with digital content creation tools provide a safe digital environment to explore and create.

Core Concepts: Biology is the second database in the Core Concepts (CC) suite, joining CC: Periodic Table and the forthcoming CC: Chemistry and CC: Physics, CC: Periodic Table and CC: Biology support STEM learning and deliver curriculum correlated content, promote digital literacy and 21st-century learning skills, and offers research, report, and homework help.

To learn more about how Rosen Publishing helps students be college-prepared and career ready, visit rosendigital.com.

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